

# **SPECIFICATIONS AND PROCUREMENT OF FREQUENCY AND TIMING EQUIPMENT AND SYSTEMS "INDUSTRY OPINION"**

Don Mitchell  
Austron, Inc.  
P. O. Box 14766  
Austin, Texas 78761

## **Abstract**

This paper presents the results of a survey of some time and frequency manufacturers on "industry opinion" as to what can be done to improve the specifications and procurement of time and frequency instrumentation and systems.

Of prime importance in this discussion is the Statement of Work (SOW) and the item specifications which are the heart of any request for proposal and resulting contract. The SOW and specification must adequately spell out exactly what needs to be done, how, when and where. The SOW and specifications should be written simply, thoroughly, logically, accurately, concisely and precisely, all of which makes it a real challenge to write. The writer should have a basic understanding of the legal implications of contract language as it relates to the SOW and specifications of a request for proposal which will result in a binding contract.

## **INTRODUCTION**

When requested to present this paper I saw it as a means of providing positive feedback to the equipment end user in his efforts to specify and ultimately procure hardware or services to satisfy his requirement.

Since I was tasked to present this as an "industry opinion", I formulated a letter soliciting comments and sent it to 37 selected individuals associated with the time and frequency industry. Selections were made from the PTTI and Frequency Control Symposium mailing lists. Written responses were not received but we did receive several informative telephone calls. Generally, comments were similar in that all agreed that there was need for improvement, but no one volunteered a specific example since their customers might think they were being singled out. Therefore, the comments for this paper were sourced from a wide range and were not limited to the time and frequency community. I do believe that most are germane to this community although they apply to other areas as well.

Since 1982 Congress has enacted eight major reforms of the defense procurement system, generating a multitude of new rules and regulations that business concerns of all sizes are required to comply with. These reforms were written to protect the government from "wrongdoers", but instead have created

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>NOV 1989</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-1989 to 00-00-1989</b>	
4. TITLE AND SUBTITLE <b>Specifications and Procurement of Frequency and Timing Equipment and Systems 'Industry Opinion'</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Austron Inc,PO Box 14766,Austin,TX,78761</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>See also ADA224769. Proceedings of the Twenty-first Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting, Redondo Beach, CA, 28-30 Nov 1989</b>					
14. ABSTRACT <b>see report</b>					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>6</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

a complexity of rules and regulations that make it possible to find a regulation that states one thing, and another that, in fact, contradicts the first. This scenario has not helped to eliminate contract abuses as intended, but in many cases has added cost to doing business with the government and in some cases allowed unscrupulous suppliers to propose and deliver substandard equipment with virtual immunity to government review or rejection.

Daily we hear of alleged abuses such as high cost hammers, toilet seats, coffee pots and defective components in our missile systems. I am sure that at least some of you in attendance have at some time experienced an anomaly that your procurement system did not allow you to remedy. To prevent such occurrences, it is of utmost importance that each of you become personally involved in your procurements to the extent that you write complete specifications and statements of work.

The following are major areas of the procurement process that you, the end user, should be familiar with. Also note that if you will be writing specifications on a continuing basis, a dialog should be maintained with your procurement group.

### **Source Selection:**

You should understand what your procurement sections policies are on source selection, their organization and processes. Understand your role or what it can be in source selection. Become familiar with the Federal Acquisition Regulations (FAR) on source selection.

### **Type of Procurement:**

You should understand types of procurements and which type will most likely result from your submitted requisition. These are likely to be: Request for Quotation (RFQ); Request for Proposal (RFP); or Invitation for Bid (IFB). Determine if you have any input in selecting the type of procurement.

### **Discussions and Negotiations:**

You should understand the difference between discussions and negotiations. Who will be involved in discussions and what are the limitations on discussions. Should discussions be limited to technical or management or both? Changes as a result of discussion should be fully documented.

### **Award Decision:**

How will the decision be made? Who will make the award decision? What are the important trade-offs:

- Technical
- Management
- Probable Cost

- Best and Final Price
- Past Performance
- Experience
- Delivery
- Service
- Life Cycle

Below I have listed some of the problems we in industry see that seem to occur repeatedly in government procurements. Some of those listed, you the end user writing the specification and statement of work (SOW) have some direct control over. Understandably you the end user will not have control over some of the items listed, but you can exert pressure on your procurement section to rectify these problems as they will affect the ultimate procurement.

## Problem

RFPs and IFBs are issued for commercial "off-the-shelf" or modified commercial "off-the-shelf" equipment with numerous listings of MIL-type requirements imposed as a requirement of the specification and/or SOW. We in industry are unable to determine if you really desire commercial "off-the-shelf" equipment that meets all of these MIL requirements and are in fact exposing ourselves to a charge of non-compliance when bidding standard commercial equipment in response to the RFP or IFB.

## Possible Solution

Fully understand your requirement. Will commercial "off-the-shelf" equipment satisfy your requirement? Is commercial "off-the-shelf" or modified commercial "off-the-shelf" equipment available to satisfy your requirement? Do a market survey or issue a draft RFP. Ninety percent of your requirements can probably be fulfilled with commercial equipment. Write your specification and SOW to clearly reflect commercial specifications unless, of course, you need MIL-spec.

## Problem

RFPs and IFBs are issued with TBDs and TBRs listed throughout the specification and SOW. These create problems not only for the vendor bidding this requirement, but also for you the end user evaluating the responses you may get to those TBDs or TBRs or, worse yet, not getting responses and a contract being issued with several TBDs and TBRs remaining unresolved.

## **Possible Solution**

If possible determine what your exact requirement is and eliminate TBDs or TBRs from your specification or SOW. If you the end user are unclear in your requirements, how can the bidder be responsive. Bidding to a government requirement should not be a guessing game, clearly state the requirement. This protects you, the government.

## **Problem**

RFPs and IFBs are issued with Section B Supplies or Services description for a brand name/model number or equal, but with Section C Description/Specification/Work Statement equipment salient characteristics which do not fully describe the brand name/model number. The brand name/model number that you require will most likely not be what you will get on this procurement. The brand name manufacturer will most likely bid to model number or face the possibility of an irate requisitioner. The other name bidders can bid only per the salient characteristics even if they know that they will not meet your requirements. Another example of what can occur is the procurement becomes a small business set-a-side and the brand name manufacturer is large business making it impossible for the brand name manufacturer to even offer a bid.

## **Possible Solution**

Don't requisition by brand name or equal model number. If, for whatever reason you need a brand name/model number equipment, then you should write a sole source justification. Nine times out of ten you will not get the brand name unit.

If you do not have adequate salient characteristics specified, you will probably not receive the brand name unit and you will most likely be totally surprised when the unit is delivered. The delivered unit will probably not even accomplish the desired result. Write a specification to submit with your requisition, it will save you time and ensure that what you procure does your job.

## **Problem**

Negotiated RFPs have been handled as two-step procurements without the protection provided under FAR regulations for a real two-step procurement.

## **Possible Solution**

Procurement should follow the Federal Acquisition Regulation procedures.

## Problem

All of us at one time or another have been witness to an instrument or equipment being delivered only to find it does not comply with the specification, is of substandard quality and in some cases non-functioning. When we try to reject the unit we find the DD250 has been signed and often the payment issued. Often after days or months of effort to rectify the problem we realize we are spinning our wheels and are forced to try to use the unit or discard it and go out on a new procurement.

## Possible Solution

Ask for Certificates of Performance or Factory Acceptance Testing. Don't hesitate on rejecting non-functioning units or units that don't meet the specification. Make sure all procurements have quality assurance provisions included. Most manufacturers will work with you to rectify any problems that may exist even if they are not at fault.

There are many other problems you encounter in procuring equipment and/or services and in order to minimize these you must at least maintain a familiarity of the acquisition process. I realize this will be difficult, but feel it will help in the long run if you understand the process.

Part of the problems may be self-created as evidenced by the following story.

The procurement section receives a requisition for a very sophisticated item of instrumentation. Attached is a one-page specification describing the requirement and listing the salient characteristics of the instrument.

That same procurement section receives a requisition for the procurement of chocolate chip cookies with a seventeen page specification describing the requirements and listing the salient characteristics of the chocolate chip cookie to include the circumference, the thickness, the minimum and maximum number of chocolate chips and the shade of brownness when done.

Which procurement stands the best chance of being what the end user really wants?

We do not have to be like the chocolate chip cookie end user to get what we need, but I feel that most of us are lax in writing specifications for the item we need to accomplish our job.

## QUESTIONS AND ANSWERS

**HELMUT HELWIG, NIST:** I wanted to make a comment. You touched on a very complex issue, just the surface of it. There are peripheral issues that are very important relating to quality, quality audit, cost accounting, cost audit, and so on which are very complex and confusing. I just want to comment that that is well recognized in the government, particularly in the Department of Defense. It is not only a Department of Defense issue when you talk about regulations and rules of the game, it is also the legislation which is confusing. New legislation is passed, sometimes in an uncoordinated way, and that creates an increasingly complex issue. I also wanted to mention that the document which describes the issues in general, especially in Defense procurements, was issued by the last Undersecretary for (not clear on the tape). It is a beautifully bound form called "Fostering U.S. Industrial Defense Readiness", or something like that. If anyone wants copies of that, I think that I could make some available.

**UNIDENTIFIABLE QUESTIONER, ROCKWELL:** I can really sympathize with you, Don. We had to write specs for the Block Two and the Block One satellites. As a little history, the rubidiums were started early and we are on the twelfth iteration of that spec. On the cesiums we are only at the second or third. Another thing that you have to worry about is the applicable documents. The customer will say that 'we are going to use 1540', when 1540 doesn't have anything to do with the environment that the clock is going to see, or even how you are going to test it and that drives up the cost unrealistically. You have to worry about the applicable documents.

**MR. MITCHELL:** My paper is longer than what I presented and I did include in the paper some of the very important problem areas and the suggested solutions. If you do require a Mil-spec component, for goodness sakes specify that, but if you can use an off the shelf component, don't have us, the manufacturer, go through reams of documentation and taking exception to it. Write what you want. If you want commercial off the shelf, then state that. Don't require us to do a lot of un-needed documentation because, in the long run, it costs more to you, the customer.